2.0 PROJECT DESCRIPTION

The Project consists of the Project Description conversion, from crude oil to natural gas service, of an approximately 304-mile segment of the former All American Pipeline from Ehrenberg, Arizona to Wheeler Ridge near Bakersfield, California (Figure 2.0-1).

The Project consists of the following components:

- replacement of certain short segments of Line 1903, including six road crossings and ten pipeline segments identified by smart pig as anomalies due to insufficient wall thickness, with new segments of pipe on the same alignment;

- removal of pig traps and valves and replacement with mainline pipe at Tejon Pump Station and Cadiz Pump Station, and removal of valves and replacement with mainline pipe at Mojave Heat Station, Twelve Gauge Lake Heat Station, and Ludlow Heat Station; ;

- pipeline abandonment and installation of new pipe on a different alignment at the Garlock Fault (Milepost [MP] 44.6) and pipeline replacement at the Calico Fault (MP 142.6);

- constructing the following four tie-ins and metering facilities: SoCalGas facilities at Wheeler Ridge (MP 2.1), Mojave/Kern Common Facilities at Daggett (MP 132.1), Mojave Pipeline at Amboy (MP 187.1), and EPNG Line 2000 at Ehrenberg (MP 303.5);

- installing a new 6.4-mile interconnect and metering station between the Cadiz Pump Station (MP 215.75) and the Mojave Pipeline;

- removing existing mainline valves at MP 50.5, MP 63, MP 126.0, MP 126.7, MP 255, MP 279.5, and MP 302.7, and MP 303.0

- installing 22 new mainline valves along the line;

- installing a new pressure control valve at MP 247.6;

- removing four existing pig facilities and installing eight new pig traps, removing five pig signals, and removing 11 vent valves;

- replacing the existing Unocal tie-in (oil service) with mainline pipe;

- conducting a post construction 8-hour hydrostatic test on the entire Line 1903 prior to placing the pipeline into natural gas service; and

- conducting an internal pipeline inspection using a smart pig within 90 days after placing the pipeline into natural gas service, to re-assess the pipeline condition and to establish baseline data for future pipeline inspections.

Upon completion of construction and testing, Line 1903 would have a MAOP of 655 psig from Wheeler Ridge (MP 0) to Daggett (MP 132), 944 psig from Daggett to Cadiz (MP 215.75), 1080 psig from Cadiz to MP 247.6, and 944 psig from MP 247.6 to Ehrenberg (MP 303.5). The 6.4-mile lateral pipeline from the Cadiz Pump Station to the Mojave Pipeline, would have an MAOP of 1,080 psig. Table 2-1 summarizes the maximum allowable operating pressures that the Project would operate under. These pressure limitations are based on the existing pipeline integrity assessment. Line 1903 is designed for bi-directional flow without additional compression.

Table 2-1. Maximum Allowable Operating Pressures

Milepost	MAOP (psig)
Line 1903	
0 - 132	655
132 – 215.75	944
215.75-247.6	1,080
247.6 – 303.5	944
Cadiz Lateral	
0-6.4	1,080

Line 1903 would tie-in with the existing Mojave Pipeline at Amboy and at the Mojave/Kern Common Facilities at Daggett. The Cadiz Lateral would also tie-in Line 1903 to the Mojave Pipeline. The Mojave Pipeline is operated by EPNG and is jointly owned by EPNG and Kern River from Daggett westward. Because the Mojave Pipeline

has an MAOP of 1,200 psig, a pressure regulator would be installed at all connections to Line 1903 to ensure that the MAOP of Line 1903 would not be exceeded. Line 1903 would be bi-directional. Therefore, flow can occur into or out of the Mojave Pipeline, depending on the relative pressures in the pipelines. The Mojave Pipeline provides access to San Juan basin and Permian basin natural gas supplies. The tie-in at the Mojave/Kern Common Facilities at Daggett also provides access to natural gas from the Kern River Pipeline and Rocky Mountain natural gas supplies. Line 1903 would tie-in to EPNG Line 2000, the remainder of the former All American Pipeline from McCamey, Texas to Ehrenberg, Arizona. The Line 2000 connection also provides access to Permian basin natural gas supplies. Line 1903 would also tie-in with SoCalGas's system at Wheeler Ridge, which delivers natural gas primarily to southern California.

2.1 PROPOSED FACILITIES

2.1.1 Pipeline Facilities

The natural gas pipeline would consist of approximately 304 miles of 30-inch O.D. steel pipe, with varying pipeline grade from API 5L – X65 to X70. The pipeline wall thickness (w.t.) would vary from 0.281–inch, 0.344-inch, or 0.438-inch depending on location. The normal flow rate in the pipeline would be from 290 to 400 million standard cubic feet of natural gas per day (MMscfd) between Daggett and Ehrenberg, and 190 MMscfd between Daggett and Wheeler Ridge. The maximum flow rate in the pipeline would be 382 MMscfd between Daggett and Amboy, 481 MMscfd between Amboy and Ehrenberg, and 210 MMscfd between Daggett and Wheeler Ridge.

A new 6.4-mile natural gas pipeline connecting the Cadiz Pump Station and Mojave Line 1900 is also proposed as an expansion of the Line 1903 system. This lateral line would be a 30-inch O.D. steel pipe, with pipe grade X70 and wall thickness of 0.321 inches. The maximum flow rate on the Cadiz Lateral would be 668 MMscfd.

2.1.2 Aboveground Facilities

Permanent aboveground facilities on Line 1903 would be constructed at 22 locations. These facilities include 22 new valves, including automatic shutdown valves; meter facilities at the four pipeline tie-ins at Wheeler Ridge, Daggett, Amboy, and Ehrenberg; and new pigging facilities at Wheeler Ridge, Mojave Heat Station, Daggett, Cadiz Pump Station, and Ehrenberg. Existing launchers and receivers from the heating and pumping stations would not be reused on the Project. A new pressure control valve

would be installed at MP 247.6. A metering facility, including pig facilities, is also planned in conjunction with the Cadiz Lateral at the connection with the Mojave Pipeline.

2.2 TYPES OF CONSTRUCTION ACTIVITIES

EPNG has identified specific construction activities required for the conversion of the pipeline and has assigned each activity a unique code. Table 2-2 provides a summary of the different types of construction activities occurring at different locations on Line 1903. The construction activities are described in more detail in the sections that follow. Table 2-3 summarizes the proposed construction activities and the areas potentially temporarily and permanently disturbed at each location on Line 1903. When several activities occur in the same locations, the total disturbance area is noted only once in the table. Figure 2.2-1 depicts a typical construction cross section on Line 1903. Table 2-4 identifies all access roads that would be used for construction activities associated with the Project. The location of all Project activities can also be seen on maps of the Project area provided in Appendix A.

Table 2.2. Types of Construction Activities

Activity Code	Construction Activity
1	Hydrostatic test cut-in on pipeline
2	Installation of new valve with blow-off and bypass functions
3	Tie-in with another pipeline
4	Replacement of existing pump station appurtenances with new pipe
5	Removal and installation of cap on existing vent valves
6	Removal of valve and replacement with pipe
7	Installation of new pig launcher and receiver
8	Removal of existing pig facilities and capping of pipe and/or installation of new valve
9	Installation of new metering facilities
10	Pipeline replacement on same alignment of old pipe
11	Storage and/or staging areas at existing pump stations
12	Removal and capping of existing pig signal
13	Abandonment of pipeline at Garlock Fault, followed by installation of new pipe on a new alignment
14	Hydrostatic test water appurtenances
15	Extra work space, storage, or staging areas
16	Installation of Cadiz Lateral pipeline
17	Installation of new powerline by local power company

Table 2-3. Project Activities, Location, and Disturbance Areas

Milepost	Landowner	County	Activity Code	Activity	Temporary Disturbance[1]			Permanent Disturbance[1]		
					Width (feet)	Length (feet)	Acres	Width (feet)	Length (feet)	Acres
Line 1903										
0	Private	Kern County, CA	8	Remove Pig Facilities; Cut & Cap Pipe; Install Vent Valve	100	300	0.69	50	50	0.06
2.1	Private	Kern County, CA	1	Hydrostatic Test Cut-In						
2.1	Private	Kern County, CA	2	Install New Valve 22 with Blow-off and Bypass				200	200	0.92
2.1	Private	Kern County, CA	3	Pipeline Tie-In (SoCal Interconnect)						
2.1	Private	Kern County, CA	7	Install New Pig Launcher						
2.1	Private	Kern County, CA	9	Install New Metering Facilities						
2.1	Private	Kern County, CA	15	Extra Work Space/Storage/Staging	500	500	5.74			
17.56	Private	Kern County, CA	1	Hydrostatic Test Cut-In						
17.56	Private	Kern County, CA	2	Install New Valve 21 with Blow-off and Bypass	100	300	0.69	50	50	0.06
22	Private	Kern County, CA	12	Remove and Cap Pig Signal	100	300	0.69			
22.48	Private	Kern County, CA	11	Storage/Staging Areas at Existing Pump Station	185	250	1.06			
22.48	Private	Kern County, CA	1	Hydrostatic Test Cut-In						
22.48	Private	Kern County, CA	4	Replace Tejon Pump Station Appurtenances with Pipe	100	1500	3.44			
22.54	Private	Kern County, CA	1	Hydrostatic Test Cut-In						
24.7	Private	Kern County, CA	5	Remove and Cap 2” Vent Valve	100	300	0.69			
24.8	Private	Kern County, CA	1	Hydrostatic Test Cut-In	100	300	0.69			
26	Tehachapi School District	Kern County, CA	1	Hydrostatic Test Cut-In	100	300	0.69			
26.1	Private	Kern County, CA	10	Pipeline Replacement (Anomaly)	100	300	0.69			
29.5	Private	Kern County, CA	1	Hydrostatic Test Cut-In	100	300	0.69			
31	Private	Kern County, CA	1	Hydrostatic Test Cut-In	100	300	0.69			
31.7	Private	Kern County, CA	5	Remove and Cap 2” Vent Valve	100	300	0.69			
32.3	Private	Kern County, CA	1	Hydrostatic Test Cut-In						
32.3	Private	Kern County, CA	14	Hydrostatic Test Water Appurtenances (temporary above ground water line)						
32.36	Private	Kern County, CA	2	Install New Valve 20 with Blow-off and	100	300	0.69	50	50	0.06

Milepost	Landowner	County	Activity Code	Activity	Temporary Disturbance[1]			Permanent Disturbance[1]		
					Width (feet)	Length (feet)	Acres	Width (feet)	Length (feet)	Acres
				Bypass						
40.2	Private	Kern County, CA	1	Hydrostatic Test Cut-In	100	300	0.69			
43.1	Private	Kern County, CA	5	Remove and Cap 4” Vent Valve	100	300	0.69			
44	Private	Kern County, CA	1	Hydrostatic Test Cut-In	100	300	0.69			
44.59	Private	Kern County, CA	13	Garlock Fault Pipeline Abandonment/ Realignment	100	3800	8.563			
45.45	Private	Kern County, CA	1	Hydrostatic Test Cut-In	100	300	0.69			
47.73	Private	Kern County, CA	1	Hydrostatic Test Cut-In	100	300	0.69			
50.46	Private	Kern County, CA	6	Remove Valve 1 and Replace with Pipe						
50.46	Private	Kern County, CA	1	Hydrostatic Test Cut-In						
50.46	Private	Kern County, CA	2	Install New Valve 19 with Blow-off and Bypass				50	50	0.06
52.32	Private	Kern County, CA	1	Hydrostatic Test Cut-In	100	300	0.69			
56	Private	Kern County, CA	1	Hydrostatic Test Cut-In	100	300	0.69			
56.07	Private	Kern County, CA	6	Remove UNOCAL Interconnect and Replace with Pipe	100	300	0.69			
62.58	Private	Kern County, CA	12	Remove and Cap Pig Signal	100	300	0.69			
63.06	Private	Kern County, CA	11	Storage/Staging Areas at Existing Pump Station	170	150	0.59			
63.06	Private	Kern County, CA	2	Install New Valve 18 with Blow-off and Bypass						
63.06	Private	Kern County, CA	2	Install New Valve 17 with Blow-off and Bypass						
63.06	Private	Kern County, CA	7	Install New Pig Launcher and Receiver				40	160	0.15
63.06	Private	Kern County, CA	6	Remove Valve 2 and Replace with Pipe						
63.06	Private	Kern County, CA	4	Replace Mojave Pump Station Appurtenances with Pipe	100	950	2.18			
63.7	Private	Kern County, CA	1	Hydrostatic Test Cut-In	100	300	0.69			
65.6	Private	Kern County, CA	5	Remove and Cap 2” Vent Valve	100	300	0.69			
82.7	Private	Kern County, CA	1	Hydrostatic Test Cut-In	100	300	0.69			
82.7	Private	Kern County, CA	2	Install New Valve 16 with Blow-off and Bypass				50	50	0.06
94.5	BLM	San Bernardino County, CA	5	Remove and Cap 2” Vent Valve	100	300	0.69			
98.7	Private	San Bernardino County, CA	1	Hydrostatic Test Cut-In	100	300	0.69			

Milepost	Landowner	County	Activity Code	Activity	Temporary Disturbance[1]			Permanent Disturbance[1]		
					Width (feet)	Length (feet)	Acres	Width (feet)	Length (feet)	Acres
98.7	Private	San Bernardino County, CA	2	Install New Valve 15 with Blow-off and Bypass				50	50	0.06
105.73	Private	San Bernardino County, CA	12	Remove and Cap Pig Signal	100	300	0.69			
105.8	Private	San Bernardino County, CA	4	Replace Twelve Gauge Heat Station Appurtenances with Pipe	100	2000	4.59			
105.8	Private	San Bernardino County, CA	11	Storage/Staging Areas at Existing Pump Station	275	200	1.26			
105.8	Private	San Bernardino County, CA	14	Hydrostatic Test Water Appurtenances (evaporation pond, temporary aboveground 8" water line)	240	1160	6.40			
109.8	BLM	San Bernardino County, CA	5	Remove and Cap 2” Vent Valve	100	300	0.69			
116.95	Private	San Bernardino County, CA	1	Hydrostatic Test Cut-In	100	300	0.69			
116.95	Private	San Bernardino County, CA	2	Install New Valve 14 with Blow-off and Bypass				50	50	0.06
126	San Bernardino County Flood Control District	San Bernardino County, CA	6	Remove Valve and Replace with Pipe	100	300	0.69			
126.7	Private	San Bernardino County, CA	1	Hydrostatic Test Cut-In	100	300	0.69			
126.7	Private	San Bernardino County, CA	6	Remove Check Valve and Replace with Pipe						
132.1	BLM	San Bernardino County, CA	2	Install New Valve 13 with Blow-off and Bypass						
132.1	Private	San Bernardino County, CA	2	Install New Valve 12 with Blow-off and Bypass						
132.1	Private	San Bernardino County, CA	3	Pipeline Tie-In (Daggett Interconnect)						
132.1	Private	San Bernardino County, CA	7	Install New Pig Launcher and Receiver				40	160	0.15
132.1	Private	San Bernardino County, CA	9	Install New Metering Facilities						
132.1	Private	San Bernardino County, CA	15	Extra Work Space/Storage/Staging	400	1000	9.18			
132.1	Private	San Bernardino	1	Hydrostatic Test Cut-In						

Milepost	Landowner	County	Activity Code	Activity	Temporary Disturbance[1]			Permanent Disturbance[1]		
					Width (feet)	Length (feet)	Acres	Width (feet)	Length (feet)	Acres
		County, CA								
136.57	Private	San Bernardino County, CA	2	Install New Valve 11 with Blow-off and Bypass	100	300	0.69	50	50	0.06
138.87	Private	San Bernardino County, CA	1	Hydrostatic Test Cut-In	100	300	0.69			
142.57	Private	San Bernardino County, CA	10	Pipeline Replacement (Calico Fault Crossing)	100	900	2.07			
149.1	BLM	San Bernardino County, CA	10	Pipeline Replacement (Anomaly)	100	300	0.69			
149.8	Private	San Bernardino County, CA	10	Pipeline Replacement (Anomaly)	100	300	0.69			
154.9	BLM	San Bernardino County, CA	10	Pipeline Replacement (Road Crossing)	100	300	0.69			
156.57	Private	San Bernardino County, CA	2	Install New Valve 10 with Blow-off and Bypass	100	300	0.69	50	50	0.06
160.8	Private	San Bernardino County, CA	1	Hydrostatic Test Cut-In	100	300	0.69			
163.9	BLM	San Bernardino County, CA	5	Remove and Cap 2” Vent Valve	100	300	0.69			
169.39	BLM	San Bernardino County, CA	12	Remove and Cap Pig Signal	100	300	0.69			
169.56	BLM	San Bernardino County, CA	4	Replace Ludlow Heat Station Appurtenances with Pipe	100	950	2.18			
169.56	Private	San Bernardino County, CA	11	Storage/Staging Areas at Existing Pump Station	200	300	1.38			
173.8	BLM	San Bernardino County, CA	10	Pipeline Replacement (Road Crossing)	100	300	0.69			
173.99	BLM	San Bernardino County, CA	5	Remove and Cap 2” Vent Valve	100	300	0.69			
175	BLM	San Bernardino County, CA	1	Hydrostatic Test Cut-In	100	300	0.69			
176.57	Private	San Bernardino County, CA	2	Install New Valve 9 with Blow-off and Bypass	100	300	0.69	50	50	0.06
177.3	BLM	San Bernardino County, CA	1	Hydrostatic Test Cut-In	100	300	0.69			
180.45	BLM	San Bernardino County, CA	1	Hydrostatic Test Cut-In	100	300	0.69			
187.1	Private	San Bernardino County, CA	9	Install New Metering Facilities				65	115	0.17

Milepost	Landowner	County	Activity Code	Activity	Temporary Disturbance[1]			Permanent Disturbance[1]		
					Width (feet)	Length (feet)	Acres	Width (feet)	Length (feet)	Acres
187.1	Private	San Bernardino County, CA	3	Pipeline Tie-In (Amboy Interconnect)	200	300	1.38			
187.1	Private	San Bernardino County, CA	17	Powerline Installation by Power Company	100	800	1.84	20	800	0.37
187.45	Private	San Bernardino County, CA	1	Hydrostatic Test Cut-In	100	300	0.69			
196.57	Private	San Bernardino County, CA	2	Install New Valve 8 with Blow-off and Bypass	100	300	0.69	50	50	0.06
197.82	BLM	San Bernardino County, CA	1	Hydrostatic Test Cut-In	100	300	0.69			
215.57	Private	San Bernardino County, CA	12	Remove and Cap Pig Signal	100	300	0.69			
215.75	Private	San Bernardino County, CA	2	Install New Valve 6 with Blow-off and Bypass						
215.75	Private	San Bernardino County, CA	7	Install New Pig Launcher and Receiver				100	100	0.23
215.75	Private	San Bernardino County, CA	14	Hydrostatic Test Water Appurtenances (evaporation pond, temporary aboveground 8" water line)	400	500	4.59	400	500	4.59
215.75	Private	San Bernardino County, CA	11	Storage/Staging Areas at Existing Pump Station	1320	700	21.2			
215.75	Private	San Bernardino County, CA	4	Replace Cadiz Pump Station Appurtenances with Pipe	100	1025	2.35			
215.75	Private	San Bernardino County, CA	1	Hydrostatic Test Cut-In						
215.75	Private	San Bernardino County, CA	2	Install New Valve 7 with Blow-off and Bypass				50	50	0.06
215.75	Private	San Bernardino County, CA		6.4-mile Lateral Pipeline, Metering Station, and Interconnect with Mojave Pipeline (see end of table)						
228	BLM	San Bernardino County, CA	2	Install New Valve 5 with Blow-off and Bypass	100	300	0.69	50	50	0.06
228.3	Private	San Bernardino County, CA	10	Pipeline Replacement (Anomaly)	100	300	0.69			
228.3	Private	San Bernardino County, CA	1	Hydrostatic Test Cut-In						
228.6	BLM	San Bernardino County, CA	5	Remove and Cap 2” Vent Valve	100	300	0.69			
247.6	Private	San Bernardino	2	Install New Valve 4 with Blow-off and	100	300	0.69	50	50	0.06

Milepost	Landowner	County	Activity Code	Activity	Temporary Disturbance[1]			Permanent Disturbance[1]		
					Width (feet)	Length (feet)	Acres	Width (feet)	Length (feet)	Acres
		County, CA		Bypass and Pressure Control Valve						
255	BLM	San Bernardino County, CA	6	Remove Valve 3 and Replace with Pipe	100	300	0.69			
255	BLM	San Bernardino County, CA	1	Hydrostatic Test Cut-In						
259.8	BLM	Riverside County, CA	10	Pipeline Replacement (Anomaly)	100	300	0.69			
261.6	BLM	Riverside County, CA	1	Hydrostatic Test Cut-In	100	300	0.69			
262.7	BLM	Riverside County, CA	10	Pipeline Replacement (Anomaly)	100	300	0.69			
264.3	BLM	Riverside County, CA	10	Pipeline Replacement (Anomaly)	100	300	0.69			
265.58	Private	Riverside County, CA	10	Pipeline Replacement (Road Crossing)	100	1200	2.75			
266.12	BLM	Riverside County, CA	5	Remove and Cap 2” Vent Valve	100	300	0.69			
267	BLM	Riverside County, CA	2	Install New Valve 3 with Blow-off and Bypass	100	300	0.69	50	50	0.06
275.15	BLM	Riverside County, CA	5	Remove and Cap 2” Vent Valve	100	300	0.69			
276	BLM	Riverside County, CA	1	Hydrostatic Test Cut-In	100	300	0.69			
278.9	BLM	Riverside County, CA	10	Pipeline Replacement (Anomaly)	100	300	0.69			
279.1	BLM	Riverside County, CA	10	Pipeline Replacement (Anomaly)	100	300	0.69			
279.47	BLM	Riverside County, CA	6	Remove Valve 4 and Replace with Pipe	100	300	0.69			
280.6	BLM	Riverside County, CA	10	Pipeline Replacement (Anomaly)	100	300	0.69			
285	BLM	Riverside County, CA	1	Hydrostatic Test Cut-In	100	300	0.69			
286.3	BLM	Riverside County, CA	2	Install New Valve 2 with Blow-off and Bypass	100	300	0.69	50	50	0.06
298.81	Private	Riverside County, CA	10	Pipeline Replacement (Road Crossing)	100	300	0.69			
300	Private	Riverside County,	10	Pipeline Replacement (Road Crossing)	100	300	0.69			

Milepost	Landowner	County	Activity Code	Activity	Temporary Disturbance[1]			Permanent Disturbance[1]		
					Width (feet)	Length (feet)	Acres	Width (feet)	Length (feet)	Acres
		CA								
300. 00	Private	Riverside County, CA	14	Hydrostatic Test Water Appurtenances (temporary above ground water line)						
302.68	Private	Riverside County, CA	6	Remove Valve 5 and Replace with Pipe	100	300	0.69			
303.4	Private	La Paz County, AZ	6	Remove Check Valve and Replace with Pipe	100	300	0.69			
303.5	Private	La Paz County, AZ	1	Hydrostatic Test Cut-In						
303.5	Private	La Paz County, AZ	2	Install New Valve 1 with Blow-off and Bypass						
303.5	Private	La Paz County, AZ	3	Pipeline Tie-In (Ehrenberg Interconnect)	100	600	1.38			
303.5	Private	La Paz County, AZ	7	Install New Pig Receiver						
303.5	Private	La Paz County, AZ	9	Install New Metering Facilities				220	100	0.51
303.5	Private	La Paz County, AZ	15	Extra Work Space/Storage/Staging	200	900	4.13			
Subtotal Line 1903							**138.62**			**8.05**
Cadiz Lateral										
0.00 to 6.4	BLM and Private	San Bernardino County, CA	16	Install 6.4 miles of new 30-inch pipeline	100	33792	77.58	50	33792	38.79
6.4	Private	San Bernardino County, CA	9	Install New Metering Facilities	200	200	0.92	100	100	0.23
6.4	Private	San Bernardino County, CA	7	Install New Pig Trap						
6.4	Private	San Bernardino County, CA	2	Install New Valve 6 (on pig trap)						
6.4	Private	San Bernardino County, CA	1	Hydrostatic Test Cut-In						
Subtotal Cadiz Lateral							**78.50**			**39.02**
Total Project							**217.12**			**47.07**

Notes:[1]Often multiple construction activities are proposed at one location. If no temporary disturbance is listed for a particular construction activity in this table, it is assumed that this activity would occur within the disturbance area listed for another construction activity at the same location

Table 2-4. Roads to be Used for Construction Access for Line 1903 and Cadiz Lateral

Approximate Milepost Begin	Access Road (Activity Code 16)
Line 1903	
0.15	Emido Pump Station Road
2.00	Farm Road
17.50	Tejon Ranch Field Road
20.00	Tejon Ranch Field Road
22.15	Tejon Ranch Field Road
22.60	Tejon Ranch Field Road
24.25	Buckskin Drive
24.60	Horsethief Drive
24.85	Horsethief Drive
25.90	Longhorn Lane
29.45	Banducci Road Spur
29.51	Banducci Road Spur
30.00	Banducci Road Spur
30.45	Banducci Road Spur
31.20	Banducci Road Spur
31.40	Banducci Road Spur
32.57	Banducci Road
33.05	Banducci Road Spur
40.25	Pierce Drive
43.02	Tehachapi Willow Springs Road Spur
43.15	Tehachapi Willow Springs Road
44.05	Tehachapi Willow Springs Road Spur
45.10	Cameron Road
45.40	Cameron Road Spur
47.73	Oak Creek Road Spur
49.50	Oak Creek Road Spur
50.36	Oak Creek Road Spur
50.46	Oak Creek Road Spur
50.65	Oak Creek Road Spur
51.60	Oak Creek Road
56.00	Southern Pacific RR Service Road
62.58	State Highway 58 Access Road
62.70	State Highway 58 Access Road
63.06	State Highway 58 Access Road
63.60	State Highway 58 Access Road
64.99	State Highway 58 Access Road
66.00	State Highway 58 Access Road
83.05	Del Oro Street
83.10	Jessie Street
93.70	State Highway 58 Access Road
98.20	San Bernardino County Road 20778
105.95	State Highway 58 Access Road
106.15	State Highway 58 Access Road
110.10	Valley View Road
111.30	Hillview Truck Trail Road
111.50	Valley Wells Road
116.60	Lenwood Road

Approximate Milepost Begin	Access Road (Activity Code 16)
117.70	Western Drive
120.60	San Bernardino Flood Control Access Rd
120.80	First Street
125.70	Soapmine Road
126.70	AT&SF RR Service Road
127.30	AT&SF RR Service Road
129.00	A Street
130.75	Camp Rock Road
131.75	EPNG Daggett Station Access Road
132.10	EPNG Daggett Station Access Road
135.70	Rocky View Road
137.80	Tovar Road
146.00	Fort Cady Road
151.91	San Bernardino County Road
151.99	San Bernardino County Road
154.90	Hector Road
160.10	AT&SF RR Service Road
160.40	Pipeline Access Road
165.10	National Trails Highway Access Road
167.05	National Trails Highway
169.60	EPNG Ludlow Station Access Road
173.80	Bagdad Chase Road
188.70	National Trails Highway Access Road
198.10	Crater Road
198.75	National Trails Highway
199.50	Amboy Road Cutoff
202.70	Saltus Road
205.00	AT&SF RR Service Road
215.50	Cadiz Road
215.75	EPNG Cadiz Station Access Road
228.00	Cadiz Road Spur
254.80	Cadiz Road Spur
256.17	Cadiz Road Spur
258.00	Colorado River Aqueduct Road
262.58	Midland Road Spur
264.01	Midland Road Spur
265.58	Midland Road
267.00	Midland Road Spur
270.90	Midland Road Spur
275.30	Arizona California RR Service Road
276.70	Midland Road Spur
276.80	Midland Road Spur
285.50	Midland Road Spur
295.00	Highway 95 (Intake Boulevard)
296.20	Canal Road
298.00	6th Avenue
298.80	8th Avenue (Field Road)
299.90	10th Avenue
301.00	US Highway 60 (Hobsonway highway)
302.30	Field Road
302.70	D Street

Approximate Milepost Begin	Access Road (Activity Code 16)
303.50	EPNG Ehrenberg Plant Road
Cadiz Lateral	
0.30	Cadiz Road
2.44	Railroad Service Road
2.50	Railroad Service Road
2.53	Railroad Service Road
6.01	National Trails Highway

Note: Currently EPNG does not plan to widen or improve any of these roads; therefore, there are no current plans to conduct resource surveys for these roads. If improvements are proposed, biological and cultural resource surveys would be conducted and appropriate permits obtained. These roads would be used only for ingress to and egress from the pipeline work areas. These roads are not located within the pipeline right-of-way except in locations where the pipeline actually crosses the roadway.

2.2.1 Valve Installations and Removals

EPNG would perform four types of construction activities on Line 1903 related to valves: installation of new valves (with blow-offs and bypasses), removal and capping of vent valves, removal of existing valves and replacement with pipeline segments, and installation of a new pressure control valve. EPNG states that all construction activities at valve locations would be limited to a 300 by 100-foot work area.

Installation of New Valves with Blow-Offs and Bypasses

EPNG intends to locate full-opening ball or gate valves at intervals of approximately 20 miles or less, depending on the class location along the entire length of Line 1903. The new valves are a safety requirement in accordance US Department of Transportation (USDOT) regulations for valve spacing (49 CFR Part 192). Figure 2.2-2 illustrates a typical block valve. Safety requirements are based on population density in the vicinity of the facility; see Section 4.6, Hazards and Public Safety, for a discussion of safety classes. EPNG has identified 19 locations along Line 1903 where 22 new valves with blow-offs and bypasses would be installed, including the installation of automatic shutdown valves near more heavily populated areas at five locations: MPs 17.56, 32.36, 50.46, 116.95, and 132.10. A new valve would also be installed at MP 6.4 on the Cadiz Lateral. Work at each of these locations would involve excavation, removal of a pipeline section, and welding of a pipeline section with a pre-tested full-opening ball or gate valve with blow-offs and bypasses. This activity is identified as Activity Code 2 in Table 2-3.

Installation of Pressure Control Valve

A pressure control station is proposed at MP 247.6. This station would have one of two configurations. The first configuration would utilize a by-pass around the mainline valve. In this scenario, the pressure control pipeline would parallel the mainline pipe at about a ten-foot offset from the mainline. The pressure control would be accomplished with two pressure control valves and isolation valves upstream and downstream of the pressure control valves. The second configuration would use an in-line pressure control valve. In this scenario two back-to-back 30-inch ball valves and a bypass line around the valves would be installed. In either scenario the extra piping would be above grade. This facility would be in a fenced enclosure approximately 50 by 50 feet.

Removal and Capping of 2-inch and 4-inch Vent Valves

Two-inch and four-inch vent valves with appurtenant piping were initially installed at 11 locations along Line 1903 as crude oil supply inlets. EPNG would verify whether the previous owners of the pipeline removed each of these vent valve assemblies. If assemblies were not removed, the vent valves (with appurtenant piping) would be removed, and caps would be welded onto the pipeline. This activity is identified as Activity Code 5 in Table 2-3.

Removal of Valves and Replacement with Pipe

EPNG has determined that the existing mainline valves on Line 1903 are not optimal for natural gas use. EPNG plans to remove six mainline valves and two 30-inch check valves, and would replace these segments with 30-inch O.D., pipe with wall thickness at least equal to the pipe on either side of the replacement and not less than 0.281-inch w.t. grade X70. This activity is identified as Activity Code 6 in Table 2-3.

2.2.2 Pipeline Connection Removal and Replacement with Pipe

The existing Unocal connection at MP 56.07 would be cut, removed, and replaced with a pipeline segment. The activity is similar to valve removals. EPNG anticipates that a 300 by 100-foot construction work area would be required for abandonment of the Unocal connection. This activity is identified as Activity Code 6 in Table 2-3.

2.2.3 Construction of Pipeline Tie-Ins and Interconnects

A total of four tie-ins are proposed on Line 1903. Metering facilities would be located immediately adjacent to the pipeline and would vary in size. An additional tie-in to the Mojave Pipeline is also planned in association with the Cadiz Lateral expansion and is discussed in Section 2.2.9, Lateral Expansion from Cadiz Pump Station to Mojave Pipeline.

Approximately 100 feet of 30-inch O.D. pipeline would be installed to tie-in Line 1903 with the existing EPNG Line 2000 at Ehrenberg (MP 303.50) and to tie-in Line 1903 with SoCalGas at Wheeler Ridge (MP 2.10). These interconnects would occur within the construction ROW of Line 1903. Line 1903 is designed as a bi-directional pipeline from Wheeler Ridge (MP 2.10) to Ehrenberg (MP 303.50), although EPNG does not currently envision any scenario where gas would flow from Wheeler Ridge (MP 2.10) to the Daggett Compressor Station (MP 132.10).

At Amboy (MP 187.2), Line 1903 would tie-in to the Mojave Pipeline (Line 1900), and EPNG would construct a meter station to allow bi-directional flow between the pipelines.

At Daggett (MP 132.10), EPNG would construct two tie-ins to the Mojave/Kern Common Facilities (MP 132.1) in San Bernardino County, California. This connection would provide access to natural gas from either the Mojave Pipeline or the Kern River Pipeline.

EPNG states that a 1,000 by 400-foot construction work area would be required for the Daggett tie-in/interconnect installation. This would include room for pigging and metering facilities, as well as extra work space and staging/storage. This activity is identified as Activity Code 3 in Table 2-3.

2.2.4 Replacement of Oil Pump/Heat Stations with Pipeline Segments

All American has dismantled five oil pump/heat stations along the length of Line 1903 (Tejon Pump Station, Mojave Heat Station, Twelve Gauge Lake Heat Station, Ludlow Heat Station, and Cadiz Pump Station). These sites are currently fenced and contain gravel surfaces. EPNG would remove the remaining piping and appurtenant equipment (valves, fittings, piping, and pigging facilities) at the Tejon Pump Station, Mojave Heat Station, Twelve Gauge Lake Heat Station, Ludlow Heat Stations, and Cadiz Pump

Station. The sites would be vacated without further surveillance or maintenance. The stations would be bypassed with a 30-inch O.D., 0.281-inch w.t., grade X70, or equal, pipe segment.

EPNG would utilize the former crude oil pump/heat stations as pipeline staging and storage areas for construction activities. This activity is identified as Activity Code 4 in Table 2-3.

2.2.5 Removal and Installation of Pig Facilities

Removal and Capping of Pig Signals

EPNG has determined that five oil service-related pig signals, upstream of each of the pump/heat stations on Line 1903, need to be removed and capped to facilitate gas service. These signals would be removed, and caps would be welded onto the pipeline. EPNG would require a 300 by 100-foot construction work area for the removal of each pig signal. This activity is identified as Activity Code 12 in Table 2-3.

Installation of New Pig Facilities

New pig facilities would be installed on Line 1903 at five locations: Wheeler Ridge, Mojave Heat Station, Daggett, Cadiz Pump Station, and Ehrenberg. Figure 2.2-3 depicts a typical pig facility. This activity is identified as Activity Code 7 in Table 2-3. One pig facility would be required for the Cadiz Lateral extension and is discussed below in Section 2.2.9, Lateral Expansion from Cadiz Pump Station to Mojave Pipeline.

Abandonment of Pig Facilities

EPNG would abandon the existing pig facilities at Emidio (MP 0.0) and not use them for the Project. The pipeline to the west would be capped, and a vent valve would be installed at MP 0.0. The 2.1 miles of pipeline between the Wheeler Ridge interconnect and the existing Emidio Pump Station would be filled with nitrogen and remain available for use in the future. This activity is identified as Activity Code 8 in Table 2-3. Pig facilities would be removed at Tejon, Twelve Gauge Lake, and Cadiz as part of the appurtenant facility abandonments described for Activity Code 4.

2.2.6 Installation of New Metering Facilities

New metering facilities on Line 1903 would be installed at Wheeler Ridge, Daggett, Amboy, and Ehrenberg to monitor and measure gas flow to receiving pipelines. Metering facilities associated with the Cadiz Lateral would be located on MP 6.4 of that lateral pipeline and are further discussed in Section 2.2.9. New metering facilities would be covered with gravel and surrounded by fencing. This activity is identified as Activity Code 9 in Table 2-3.

2.2.7 Pipeline Replacement due to Anomaly, Road Crossing, or Fault Location

Anomaly Replacements

EPNG has identified ten locations where pipe with wall thickness anomalies would be excavated, evaluated, and repaired or replaced as necessary. Repair and replacements would make the pipeline compliant with USDOT standards. These original segments would be replaced with pipe of equal or greater strength. The pipe would be replaced with new pipe, or repaired with a reinforcing sleeve of steel or composite material. The pipe would be recoated, the excavation would be backfilled, and the area would be restored. This activity is identified as Activity Code 10 in Table 2-3.

Road Crossing Replacements

EPNG has determined that six road crossings on Line 1903 would need to be replaced to meet USDOT standards. In some cases, the existing pipe segment would be removed and a new segment would be installed. In other cases, the existing pipe would be capped and left in place, and a new pipe segment would be trenched or bored adjacent to it. The county encroachment permits for work in the roadway would determine the need for boring. These segments would be replaced with 30-inch O.D., X70 grade, and minimum wall thickness of 0.344 inches, depending on class location or other appropriate specifications. This activity is identified as Activity Code 10 in Table 2-3.

Fault Location Crossing Replacement

An approximately 800-foot long segment of pipeline that crosses Calico Fault (approximately MP 142.57) would be replaced. The existing pipe would be removed

and replaced with a thicker-walled pipe as recommended in the geohazard assessments. An area approximately 100 by 800 feet would be disturbed. This activity is identified as Activity Code 10 in Table 2-3.

2.2.8 Pipeline Abandonment and Realignment

EPNG has determined, based on their geohazard assessment and discussions with the CSLC, that the pipeline route across the Garlock Fault (approximately MP 44.6) should be realigned and replaced with an upgraded pipe. EPNG plans to abandon, in place, the existing segment across the Garlock Fault and install approximately 3,800 feet of 30-inch O.D. heavy-wall pipe around this location. An area approximately 100 by 3,800 feet would be disturbed. This activity is identified as Activity Code 13 in Table 2-3.

2.2.9 Lateral Expansion from Cadiz Pump Station to Mojave Pipeline

This expansion would interconnect the existing Cadiz Pump Station (MP 215.75) with the Mojave Pipeline (Line 1900). The possible interconnect would include the construction of a 100- by 100-foot metering station (Activity Code 9), including pig facilities (Activity Code 7) and valve (Activity Code 2), located at the Mojave Pipeline. In addition to the metering facilities, an approximately 6.4-mile pipeline lateral would be necessary to connect the two pipeline systems. The new 30-inch O.D. pipeline lateral would be constructed within an existing, previously disturbed pipeline corridor and would replace an existing 6-inch fuel line. The pipe would be 30” pipe grade X70 with a minimum wall thickness of 0.321 inches. The proposed normal flow rate on the lateral pipeline would be from 290 to 400 MMscfd. This range depends on the flow rate current at that time on the Mojave Pipeline. The maximum flow rate on the lateral pipeline would be 668 MMscfd. This pipeline expansion is identified as Activity Code 16.

2.2.10 Hydrostatic Test Cut-Ins

All American hydrostatically tested the line prior to commissioning the All American pipeline as an interstate crude oil transmission pipeline. However, the entire pipeline must be hydrostatically tested to meet the MAOPs described in Table 2-3. EPNG has divided the approximately 304-mile pipeline into 35 test segments. EPNG anticipates that a 300 by 100-foot construction work area would be required for installation of each of the temporary test headers. This activity is identified as Activity Code 1 in Table 2-3.

The Cadiz lateral would be hydrostratically tested to a MAOP of 1,080 pounds psig at the same time as Line 1903. There would be one test segment for the Cadiz Lateral.

2.2.11 Hydrostatic Test Water Appurtenances

EPNG has determined that approximately 28 million gallons of water would be required to hydrostatically test the pipeline. The hydrostatic testing process involves hydrostatic test cut-ins, test water acquisition, and test water discharge.

Hydrostatic test water sources have been identified at two locations, one in the Tehachapi Mountains and one in the Blythe area. The former would be drawn from a local reservoir called Brite Lake and the latter from an irrigation canal managed by the Palo Verde Irrigation District.

After testing is complete, hydrostatic test water would be discharged at two proposed sites. At each site, a 14–million gallon lined pond would be constructed within an existing facility fenceline. Approximately 7 acres would be temporarily disturbed for each of the two hydrostatic test water ponds. In the Tehachapi Mountains, EPNG proposes to discharge hydrostatic test water at the Twelve Gauge Lake Heat Station. Hydrostatic test water from the remaining test segments would be discharged at the Cadiz Pump Station. The test water would be tested, treated if necessary, and discharged. Four temporary above ground water lines are proposed at four locations for the hydrostatic test water. Following testing, evaporation ponds would be removed by recontouring the areas back to their original grades. These activities are identified as Activity Code 14 in Table 2-3.

2.2.12 Internal Smart Pig Inspection

An internal pipeline inspection of Line 1903 and the Cadiz Lateral would be conducted within 90 days after placing the pipeline into natural gas service, in order to re-assess the pipeline condition and to establish baseline data for future pipeline inspections. This internal inspection would be done using a smart pig. Smart pigs are inspection vehicles that move inside a pipeline to detect wall thinning, cracks, and other problems. After the initial smart pig run, any anomalies that may reduce the integrity of the pipeline would be excavated and inspected. If a defect or damage is found, the pipe would be replaced with new pipe, or repaired with a reinforcing sleeve of steel or composite

material. The pipe would be recoated, the excavation would be backfilled, and the area would be restored.

The Mitigation Monitoring Plan (MMP) (Section 6.0) describes the protocols to be followed for regulatory approval of any Project changes. All Project changes require some level of regulatory approval by CSLC, BLM, and other relevant agencies. As described in Section 6, Mitigation Monitoring Plan, anomalies outside areas surveyed for biological and cultural resources, within 50 feet of a residence, or in an area where EPNG has not secured landowner approval, would not be included in the scope of this EIR/EA and would require additional analysis and approval by CSLC, BLM, FERC and any other agencies with jurisdiction at the location. This may require the completion of additional resource surveys, and supplemental CEQA and NEPA analysis to address the new or expanded impact.

2.3 LAND REQUIREMENTS

EPNG has completed ROW landowner identification and has transferred all easements and ROW agreements from All American to EPNG. The majority (approximately 135.4 miles or 45 percent) of the existing Line 1903 pipeline is situated on private lands. Approximately 122 miles (40 percent) of Line 1903 crosses BLM lands, approximately 14.5 miles (five percent) crosses US Air Force property (Edwards Air Force Base), approximately 7.05 miles (less than one percent) crosses two California state-owned leases on sovereign and school lands, and approximately 0.6 miles (less than one percent) crosses lands held by the San Bernardino Flood Control District. As of May 7, 2002, EPNG had secured 100 percent landowner permission to conduct route, natural resources, and cultural resources surveys from the affected landowners between Wheeler Ridge and Ehrenberg. As of November 14, 2003, all but approximately 3 miles (17,963 feet) of the ROW have easements that include natural gas use of the pipeline. EPNG is currently negotiating with the two owners of these properties to modify the easements. The Cadiz Lateral pipeline and facilities are located on 3.1 miles (48 percent) private land and 3.3 miles (52 percent) BLM lands. EPNG is still negotiating ROW agreements for 3.1 miles of private land on the Cadiz Lateral.

Conversion and construction of the Project components would affect a maximum of 133.60 acres of land, of which approximately 8.05 acres would be considered permanent disturbance required for aboveground facilities. The construction of the Cadiz Lateral and metering facility would affect an additional 78.50 acres of land, of

which approximately 39.02 acres would be considered permanent disturbance. Table 2-3 provides a listing of activities by milepost and a summation of construction and permanent disturbance for the Project.

2.3.1 Pipeline Rights-of-Way

EPNG proposes to use a 100-foot-wide ROW for construction activities for both Line 1903 and the Cadiz Lateral. The construction ROW extends 50 feet on either side of the centerline of the pipeline. The construction ROW would encompass both the 50-foot-wide permanent ROW (retained for the life of the pipeline), and an additional temporary ROW required only during construction. A 100-foot-wide construction ROW is necessary to allow construction equipment to safely pass along the ROW. EPNG would retain up to 50 feet as the permanent ROW on both lines after the conversion and construction activities are complete. Figure 2.3-1 illustrates these land requirements.

Construction of the Project, including the Cadiz Lateral and metering station, would affect a maximum of 211.65 acres of land, including primarily undeveloped desert, rangeland, and agricultural land. For purposes of this calculation, a 100-foot-wide construction ROW has been assumed for all construction locations. EPNG would use the former All American crude oil pump and heat stations as staging areas, and pipe storage facilities for proposed construction activities. The crude oil pump and heat stations are previously disturbed and fenced sites. The Cadiz Lateral would be situated in a previously disturbed ROW for an existing gas pipeline. EPNG would use existing patrol roads as much as possible. The pump stations, heat stations, and existing patrol roads are included in the land disturbance estimates and are categorized as “previously disturbed”. Pipeline interconnects would be within the current pipeline ROW.

Following construction, all but about 47.07 acres of temporary construction area would be allowed to revert to previous land uses. Approximately 8.28 acres of this area would be dedicated to the permanent placement of aboveground facilities discussed below. Approximately 39.02 acres of this area would be dedicated as permanent ROW for the Cadiz Lateral.

Table 2-3 provides a summary of currently estimated land requirements for pipeline construction. Detailed information regarding land requirements is provided in Section 4.12, Land Use and Planning.

2.3.2 Construction Access

The construction locations listed in Table 2–3 would be accessed by the ROW for the existing Line 1903, existing access roads, or existing patrol roads that parallel the ROW. The locations of existing access roads can be found in Table 2-4. Currently, EPNG does not plan to widen or improve any of these access roads; however, minor road maintenance, such as blading surfaces and restoring drainage ditches or culverts, would be conducted prior to and following construction activities to ensure safe travel on the roads. These activities would not require significant ground disturbance.

2.3.3 Aboveground Facilities

Table 2-3 provides a breakdown of land requirements for constructed aboveground facilities; land requirements include installation of new valves (with blow-offs and bypasses), as well as meter stations, launchers/receivers, and the powerline to the Amboy interconnect. The installation of these new aboveground facilities, including the metering facility associated with the Cadiz Lateral, would permanently convert 8.28 acres from native rangeland to aboveground facilities.

2.4 CONSTRUCTION PROCEDURES

2.4.1 Pipeline Conversion Procedures

Marking the Right-of-Way

Proposed construction locations along the existing pipeline and access routes would be identified and marked prior to any construction activity. Only approved locations and routes would be used for construction. Construction equipment must remain inside authorized ROW and extra work areas as described in Table 2-3. Alignment identification would include marking the centerline of the pipeline at line-of-sight intervals, at points of intersection (including offset stakes marking the edges of the ROW), and at all known underground facilities (including drain tiles and irrigation systems that parallel or cross the pipeline route). Potentially affected foreign appurtenances and utilities (such as telephone poles and foreign line crossings) would be properly identified. EPNG also would clearly mark environmentally sensitive areas and restrict any construction activities or equipment from these areas. Pipeline locators and other appropriate means would be used to locate underground facilities.

Clearing and Grading

The temporary construction ROW would be cleared of any large shrubs and obstructions, and would be graded to provide a relatively level surface to accommodate construction equipment, while preserving natural drainage to the extent possible. Following construction, EPNG would retain up to 50 feet centered on the pipeline as a permanent ROW.

Clearing on the spoil side would be limited to what is necessary for the construction activity. Spoil, brush, roots, and rocks removed from the working side of the ROW would be windrowed on the outer edge of the temporary ROW during construction. Prior to clearing and grading, succulents should be dug and salvaged to be transplanted during reclamation. See Section 4.1, Introduction to Environmental Analysis, for details on reclamation activities. Topsoil would be segregated over the ditchline and stored separately where cultivated cropland or wetland areas would be disturbed by construction, or where requested by the landowner. Topsoil would not be segregated in wetlands that are saturated or frozen. Topsoil would be segregated or imported in residential areas. On BLM lands, topsoil would be stripped from the trench and working side of the ROW. Topsoil would be stored in piles and segregated from the trench soil, to be replaced after construction is completed. To protect topsoil from wind erosion, EPNG would apply water and/or a non-toxic organic tackifier in areas highly susceptible to wind erosion and in other areas where soil conditions warrant. All existing permanent survey monuments and reference monuments in the pipeline ROW would be protected against disturbance during construction. Vegetation buffers of appropriate width would be left between any construction areas and waterbodies and wetlands.

Trenching

Backhoes and hand tools would be used to expose the existing pipeline to allow modifications. Rotary wheel ditching machines, backhoes, or rippers would be used for new pipeline construction (Wheeler Ridge interconnect, Daggett interconnect, Amboy interconnect, Ehrenberg interconnect, and Cadiz interconnect) to excavate a trench of sufficient depth to provide the minimum depth of cover required by the USDOT. Spoil typically would be deposited on the non-working side of the ROW. Because the majority of construction sites occur within the previously disturbed ROW, excavation along the existing ROW would not require blasting. In addition, no blasting would occur given the proximity of existing pipeline facilities. Should areas of rock or rocky soil be

encountered, ripping may be required. Because ground disturbance associated with construction of the Project is primarily limited to 6 feet below the existing ground surface, in most locations it would be above bedrock. If bedrock is encountered during construction along a tie-in or interconnect, EPNG's preferred procedure would be to fracture and excavate the bedrock using standard construction equipment (Figure 2.4-1).

Pipeline Depth

EPNG would ensure that the existing pipeline and any new pipeline meet or exceed the minimum depth of cover over the pipeline required by the USDOT (e.g., 30 to 36 inches in normal soils). For new pipeline construction, crossing of foreign pipelines would generally require the pipeline to be buried at greater depths. Where required, 12 to 24 inches of clearance would be maintained when crossing foreign pipelines, cables, or other similar structures.

Pipe Laying

Stringing, bending, welding, and lowering-in of the new pipeline typically would occur on the working side of the trench. Pipe segments would be strung along the ROW parallel to the trench, bent to conform to the trench contour, aligned, welded together, and lowered into the trench. All new pipeline welds would be inspected both visually and radiographically by certified weld inspectors, repaired as necessary, and coated. New pipeline segments would be inspected to locate and repair any faults or voids in the pipeline coating prior to being lowered into the trench. If rock conditions are encountered, the trench bottom would first be padded with a layer of rock-free soil.

Backfilling

Once the pipeline has been installed in the trench, a layer of padding soil would be placed over the pipe to protect the coating. The trench would then be backfilled using previously excavated materials. Segregated topsoil would be restored to its original grade and contour. The ROW would be re-graded to its approximate pre-construction contour, seeded, fertilized, and mulched, as appropriate. In non-cultivated areas, a soil mound may be left over the ditch line to allow for soil settlement.

Staging Areas

Eight locations are proposed for use as extra work space, storage, and/or staging areas. Five construction staging areas would be located at existing stations along the ROW. The existing stations at Tejon, Mojave, Twelve Gauge Lake, Ludlow, and Cadiz are shown in Table 2-3 under Activity Code 11. Three additional locations for equipment staging and material storage would be available for use adjacent to the ROW. These locations (Wheeler Ridge, Daggett, and Ehrenberg) are listed in Table 2-3 under Activity Code 15.

Restoration and Cleanup

Restoration of terrain and revegetation would be completed in accordance with the Upland Erosion Control, Revegetation, and Maintenance Plan (UECRM Plan) (Appendix D1). If construction activities occur in areas of rugged terrain where two-toning (terracing) or cutting to grade are required, stockpiled topsoil would be spread to cover the disturbed area. River, stream, and wash banks cut during trenching operations would be restored to their original slope and grade, and erosion control measures would be installed. Soil compaction would be alleviated, where necessary, as described in Appendix D1. All work areas would be restored as close as practicable to their original condition.

Pipeline markers and cathodic protection stations are currently located along the existing pipeline. Line 1903 would utilize the existing cathodic protection installed by All American, upgraded to meet EPNG's standards. Milepost markers and cathodic protection stations generally are located at regular intervals within the permanent ROW and adjacent to road crossings.

Aboveground Facility Construction Procedures

Permanent aboveground facilities would be constructed at 21 locations. These facilities include 22 new valves, including five automatic shutdown valves; meter facilities at the four pipeline tie-ins at Wheeler Ridge, Daggett, Amboy, and Ehrenberg; and new pigging facilities at Wheeler Ridge, Mojave Heat Station, Daggett, Cadiz Pump Station, and Ehrenberg. Existing launchers and receivers from the heat/pump stations would be removed by EPNG and either disposed of or refurbished for reuse on other EPNG projects. The Cadiz Lateral also would require a metering station and pigging facilities near the Mojave Pipeline.

Special Construction Techniques

Rugged Topography

Where construction sites are located within areas of steep side slopes, terracing of the work area during construction (two-toning) may be required. In areas where two-toning is necessary, the topsoil would be stripped down to a maximum depth of 12 inches and stockpiled separately from the spoil/subsoil material. All drainage areas crossed by the pipeline would be maintained free of obstructions. Drainage channels would be restored following the completion of construction operations.

Road and Railroad Crossings

The Project would require construction activities at six road crossings on Line 1903 and two roads on the Cadiz Lateral. Improved or frequently traveled roads would be bored or tunneled, in accordance with USDOT requirements at 49 CFR Part 192 and in compliance with road crossing permit requirements. Minor or infrequently traveled gravel or dirt roads may be open-cut. Where roads are open-cut, proper barricades, lights, or warning signs would be in place and traffic flow would be maintained. Road crossings would be uncased, unless otherwise required by permit. Excavation depth and pipeline cover for each crossing would vary, depending on the terrain, length of crossing, and other factors. Following pipe placement, the trench would be backfilled and the roadbed returned to its original or better condition. Although the line crosses railroads in 14 places on Line 1903, no construction activities are proposed at any of these crossings. Construction of the Cadiz Lateral would require crossing two railroads the AT&SF Railroad (MP 2.47 Cadiz Lateral) and Arizona-California Railroad (MP 0.34 Cadiz Lateral). EPNG proposes to bore or tunnel under these railroads.

Wetland Construction

One construction activity crosses through approximately 280 feet of a US Army Corps of Engineers (USACE) jurisdictional wetland area near MP 44.59 (Garlock Fault pipeline abandonment/realignment). Construction across this wetland would occur in accordance with conditions described in the Section 404 USACE permit for the work, as described in the Line 1903 Wetland and Waterbody Construction and Mitigation Procedures (WWCM Procedures) (Appendix D2) and mitigation measures BIO-1 and BIO-2 in Section 4.0, Environmental Analysis. Some additional work locations lie in non-vegetated seasonal playas. While these are not considered USACE-jurisdictional wetlands, construction methods outlined in Appendix D2 would be used in these areas.

Waterbody Crossings

No perennial waterbodies would be crossed by proposed construction activity locations, although some waters of the United States (dry washes as regulated by the USACE) would be affected. If flowing water is encountered during construction, crossings would be conducted in accordance with the WWCM Procedures (Appendix D2) and mitigation measures BIO-1 and BIO-2 described in Section 4.0, Environmental Analysis.

2.5 CONSTRUCTION SCHEDULE AND WORK FORCE

Construction of the Project is scheduled to start as soon as possible after all regulatory approvals, including CSLC approval of leases of State lands and issuance of a notice to proceed, BLM approval of the amendment to the ROW grant and issuance of a notice to proceed, and issuance of a FERC order granting authorization for the Project. The start of construction is anticipated to be in the second half of 2005. EPNG proposes an in-service date of December 2005.

Construction activities associated with the conversion would occur along the entire length of Line 1903. EPNG anticipates work would be completed with one or two construction areas or "spreads," each consisting of approximately 100 to 150 temporary workers. Construction from Daggett to Ehrenberg (MP 132 to MP 303.50) would start first. Construction activities may occur concurrently over the entire Project length. As previously stated, Line 1903 would be hydrostatically tested, as required, after all necessary conversion and construction activities are completed.

Construction activities associated with the Cadiz Lateral would require approximately 12 weeks and would occur during construction activities on Line 1903. This lateral pipeline would be hydrostatically tested following completion of all construction activities in conjunction with hydrostatic testing of Line 1903.

2.6 ENVIRONMENTAL COMPLIANCE AND MITIGATION MONITORING

Pipeline construction would be performed in accordance with the following compliance plans and procedures proposed by the Applicant and hereby incorporated into Project design:

- Upland Erosion Control, Revegetation, and Maintenance Plan (UECRM Plan) (Appendix D1);

- Line 1903 Wetland and Waterbody Construction and Mitigation Procedures (Procedures) (Appendix D2);
- Storm Water Pollution Prevention Plan (SWPPP) (Appendix D3);
- Spill Prevention, Containment, and Countermeasure Plan (SPCC Plan) (Appendix D4);
- Noxious Weeds Protection Plan (Appendix D5);
- Fire Prevention and Suppression Plan (Appendix D6);
- Desert Tortoise Handling Plan (Appendix D7);
- Protection Measures for Special Status Species During Construction (Appendix D8); and
- Contaminated Soils Plan (Appendix D9).

Additional plans that would be required as mitigation for potential impacts are identified in Section 6, Mitigation Monitoring Plan. The MMP addresses requirements placed on the Project by the CSLC and other agencies. Full-time third-party compliance monitors representing the CSLC, BLM, and FERC under contract to the CSLC, would be present on each construction spread to monitor compliance with Project mitigation measures and requirements. Other Federal and State agencies may also conduct inspection and monitoring to the extent determined necessary by the individual agency.

Qualified environmental inspectors (EIs) under contract to EPNG would be assigned to each construction spread to monitor environmental compliance during construction. The responsibilities of the EIs are outlined in the MMP (Section 6.0) and include ensuring that the environmental conditions attached to the EIR/EA and other permits or authorizations are met. During the construction phase, EPNG's EIs would inspect and monitor all construction and mitigation activities to ensure compliance with plans, permits, and conditions. Specifically, the EIs would be:

- responsible for monitoring and ensuring compliance with all environmental mitigation measures required in the EIR/EA and other grants, permits, or other authorizing documents;

- responsible for evaluating the construction contractors' implementation of the environmental mitigation measures required in the contract and any other authorizing documents;

- empowered to order correction of acts that violate the environmental conditions of the EIR/EA and any other authorizing document;

- a full-time position separate from all other activity inspectors; and

- responsible for maintaining status reports.

All of the above requirements would be exercised in conjunction with and with the concurrence of the CSLC, BLM and FERC third-party monitors.

As the lead Federal agency for the Project, the BLM may impose conditions on any ROW grant for the Project. These conditions could include additional requirements and mitigation measures identified in the EIR/EA to minimize the environmental impact that would result from construction of the Project. In accordance with the Mineral Leasing Act, the BLM would require EPNG to furnish a bond, or other security, to ensure that EPNG would comply with the terms and conditions of the BLM's ROW grant. The bond would address payment responsibility for mitigation measures specified in this EIR/EA, including agreements between EPNG and CSLC, California Department of Fish and Game, and other third parties.

EPNG has developed a post-construction monitoring program that is described in the UECRM Plan provided in Appendix D1. Monitoring data would be collected through field visits and aerial surveys; compiled in reports; and submitted annually to the CSLC, BLM, FERC, and other appropriate land and resource management agencies. Specific success criteria have been developed in consultation with the appropriate land and resource management agencies.

If the results of the annual monitoring indicate that the success criteria are not being met, remedial action would be taken. Areas where restoration is noted as being

unsuccessful would be identified by milepost. These locations and any remedial actions taken would be documented in reports that would be provided to the CSLC, BLM, FERC, and other appropriate land and resource management agencies within three months following the inspections. The remedial treatments used would be determined on a site-specific basis and in consultation with the landowner or land management agency and the applicable resource management agencies. Should the success criteria not be met at the end of the monitoring program, EPNG would work with the landowner or land management agency and the applicable resource management agencies to take corrective actions as appropriate.

If it is determined that any of the proposed monitoring time frames are not adequate to assess the success of restoration, EPNG would be required to extend its post-construction monitoring programs. The BLM and CSLC would retain EPNG's bond or other security until they are satisfied with EPNG's reclamation efforts.

2.7 OPERATION, MAINTENANCE, AND SAFETY CONTROLS

As described in this section, the Project facilities would be operated and maintained in accordance with USDOT safety standards "Transportation of Natural and Other Gas by Pipeline, 49 CFR Part 192" and pursuant to the General Terms and Conditions of EPNG's FERC Gas Tariff. EPNG would perform operation and maintenance of the Line 1903 pipeline facilities. EPNG does not anticipate requiring additional employees for pipeline operations and maintenance.

The pipeline would be inspected periodically from the air and on foot as operating conditions permit, but no less frequently than required by applicable regulatory requirements. USDOT requires gas pipeline ROWs in Class 1 and 2 areas to be inspected by either walking, driving, flying, or other appropriate means a minimum of every 7.5 months and at least twice a year at highway and railroad crossings and at least every 15 months and once a year at all other locations. At Class 3 locations, the pipeline ROW must be inspected every 4.5 months and at least four times a year at highway and railroad crossings and at least every 7.5 months and at least twice a year at all other places. Class designations are determined by USDOT based on population densities in the vicinity of the pipeline, with Class 1the least densely populated and Class 4 the most densely populated. See Section 4.6, Hazards and Public Safety for class locations on the Line 1903 and the Cadiz Lateral.

Surveillance activities would provide information on possible encroachments and nearby construction activities, erosion, exposed pipe, and any other potential concerns that may affect the safety and operation of the pipeline. Evidence of population changes would be monitored, and class locations would be redesignated as necessary. Field personnel would advise the appropriate operations personnel of new construction along or near the pipeline system. Line patrol of existing highway and railroad crossings would be completed as required by the USDOT. Valves two inches and larger would be inspected annually, and the results would be documented. The frequency of smart pig inspections would be in accordance with ASME B31.8S, which requires that appropriate integrity assessments are selected and conducted. The integrity assessment methods are in-line inspection, pressure testing, direct assessment, or other integrity assessment methods. Once the integrity of the pipeline is established, the re-inspection interval using the prescriptive integrity management program would be as detailed in ASME B31.8S. After any smart pig runs, a report is received from the smart pig vendor. The report is analyzed by a Pipeline Field Services Engineer, and anomalies are graded according to their effect on the integrity of the pipeline. Anomalies that are considered to have an immediate effect are scheduled for investigation within 30 days. In some cases, the pipeline pressure would be reduced until the anomaly is investigated and proven safe or repaired. Anomalies that are investigated are cleaned and recoated, and covered with a steel or composite material repair sleeve; or the segment of pipe containing the anomaly is replaced.

The permanent pipeline ROW in non-wetland areas would be maintained only as required to facilitate visual inspection and access. Cultivated areas would be allowed to revert to prior use.

Other maintenance functions would include:

- terrace repair, backfill replacement and, if necessary, drainage system repair;
- periodic inspection of water crossings; and
- maintenance of emergency pipe, leak repair clamps, and sleeves for repair activities.

Operation and maintenance procedures in the vicinity of waterbodies, wetlands, and upland areas are described in the UECRM Plan (Appendix D1) and in mitigation

measures BIO-1 and BIO-2 in Section 4.0, Environmental Analysis. Operation and maintenance procedures would be performed in accordance with USDOT requirements in 40 CFR Part 129 and would include development of a manual for normal and abnormal operations, record keeping for maintenance, inspections, and corrosion control, and safety requirements.

Active corrosion, leakage, encroachments, soil erosion, ground movements, missing or damaged markers, or other changes requiring attention would be reported; and the required repairs would be made. These activities, as well as the investigation of pipeline anomalies, may require ground-disturbing activities. Biological and cultural resource surveys would be conducted prior to work, and agency notification and permitting would be required based upon the results or on the scale of the anticipated work. CEQA and NEPA review would also be required for all discretionary permits.

The Line 1903 pipeline would be remotely monitored by a Supervisory Control and Data Acquisition (SCADA) system. A trained operator would monitor the SCADA system 24 hours a day in the Gas Control Center in Colorado Springs, Colorado. Remote locations on the pipeline are monitored via telecommunications (radios, phone lines, and/or satellite) systems that poll remote terminal units (RTUs) about once every two to four minutes. RTUs are designed to measure gas volumes. The RTUs are also equipped with software functions to control flow rates and pressures, and to monitor gas quality data for local or remote valve shut-in signals based on the operating conditions. Volumetric flow rates, pressures, temperatures, and gas quality data are received and archived on the SCADA system for pipeline operations. The RTUs and communication systems provide the ability to control flows, pressures, and valve positions through set-points and signal commands that are transmitted based on the operational conditions or requirements set by Gas Control. Pre-set alarm and status signals are transmitted from the RTUs to the Gas Control Center; the gas controller/operator evaluates all alarms/status signals for appropriate action or acknowledgement of the alarm condition.

2.8 FUTURE PLANS AND ABANDONMENT

No future plans are anticipated beyond those in this description of the Proposed Action.

The following items are not anticipated and were therefore intentionally excluded from the scope of this EIR/EA and land use approvals:

- new compressor stations;
- increased pressure above that outlined in Table 2-1;
- new pipeline interconnections; or
- uses other than transmission of natural gas.

Implementation of any of these activities would require subsequent CEQA and NEPA review by the CSLC, BLM, and FERC.

If, in EPNG's judgement, future market demands warrant expansion of the Project, EPNG would file an appropriate application with the CSLC, BLM, and FERC. Likewise, EPNG has no future plans for abandonment of the Line 1903 pipeline.

If and when EPNG abandons any of the proposed facilities, the abandonment would be subject to separate approvals by the CSLC, BLM, and FERC.

The CSLC review would be conducted under the CEQA. The CSLC's policy is to require complete removal of abandoned facilities unless at the time of abandonment it can be demonstrated that more long-term impacts would result from removal than abandonment in place.

For the Federal lands involved, the BLM would require EPNG to submit an abandonment plan at least 90 days prior to anticipated abandonment. The abandonment plan would be reviewed by the BLM and the other affected Federal land management agencies. The BLM would be responsible for approving the plan after NEPA review and receipt of concurrence from the other affected Federal land management agencies.

The FERC review would be conducted under Section 7(b) of the NGA. In the absence of landowner preference, the FERC typically allows a buried pipeline to be abandoned in-place, but only after it is purged of natural gas, isolated from interconnects with other pipelines, and sealed. The FERC staff believes that this approach minimizes surface disturbance and other potential environmental impacts, but generally defers to the individual landowner's wishes if a preference is expressed regarding in-place abandonment versus abandonment by removal. For abandonment of aboveground

facilities, both the BLM and FERC require all structures, related equipment, foundations, and piping to be completely removed and the station sites to be restored to as near original condition as possible.

Upon abandonment of the pipeline, in part or in whole, the ROW associated with the abandoned facilities would normally be returned to the landowners/land management agencies according to the specific easement agreements between the pipeline company and the landowners/land management agencies.

2.9 PERMITS, APPROVALS, AND REGULATORY REQUIREMENTS

Conversion and operation of the facilities would involve the acquisition of various Federal, State, and local permits in addition to the FERC Certificate, CSLC certification, and BLM ROW grant. Construction would require a Section 404 permit from the USACE to cross streams and wetlands, as well as approvals from the US Fish and Wildlife Service (USFWS), CDFG, and the State Historic Preservation Offices, among others.

Table 2-5 summarizes the Federal, State, and local permits and approvals to which the Line 1903 Project may be subject, provided that any such State or local requirements or conditions do not conflict with or are not otherwise preempted by FERC's requirements or conditions. EPNG would submit a majority of the applications for these permits in 2004.

Table 2-5. Permits, Approvals, and Clearances for Construction, Operation, and Maintenance

Agency	Activity Requiring Approval	Form of Approval	Status of Review
Federal Agencies			
Federal Energy Regulatory Commission (FERC)	Construction and operation of interstate natural gas transmission pipeline facilities	Certificate of Public Convenience and Necessity	Application filed October 2004 with FERC
US Fish and Wildlife Service USFWS)	Construction of natural gas pipeline facilities	Clearance under Section 7 of the Endangered Species Act	Formal consultation ongoing
Bureau of Land Management (BLM)	Transfer of ROW easements from All American to EPNG; additional approval for Powerline ROW	ROW Grant(s)	EPNG filed amended application August 2004
Department of the Army, Corps of Engineers (USACE)	Construction of pipeline across waters of the U.S., including wetlands	Section 404 Permit (Nationwide 3 & 12 expected)	To be obtained prior to construction.
US Environmental Agency Protection(USEPA) - Region 9	Construction of pipeline in Arizona and California	General Construction (Storm Water) Permit	To be obtained prior to construction
State Agencies			
California			
California State Historic Preservation (SHPO)	Construction of natural gas pipeline	Clearance under Section 106 of the National Historic Preservation Act	Survey report submitted
California State Lands Commission (CSLC)	Construction on State Sovereign and School lands	Certify Project and issue lease	To be obtained prior to construction and following approval of EIR
Central Valley Regional Water Quality Control Board, Lahontan Regional Water Quality Control Board, Colorado River Basin Regional Water Quality Control Board	Construction of pipeline across waters of the U.S., including wetlands Construction disturbance over 5 acres Discharge of hydrostatic test water	Section 401 Certification (NPDES) stormwater for construction permit NPDES Discharge Permit	Application in preparation To be obtained prior to construction To be obtained prior to construction
California Department of Fish and Game Department (CDFG)	Construction of pipeline across California Construction activity in dry washes	T & E Species Incidental Take Permit (2081) Streambed Alteration Agreement	To be obtained prior to construction To be obtained prior to construction
California Department of Transportation	Construction of pipeline across State highways	Highway crossing permit	To be obtained prior to construction
Public Utilities Commission	Construction of electrical distribution powerline in California		
Arizona			

Agency	Activity Requiring Approval	Form of Approval	Status of Review
Arizona State Historic Preservation (SHPO)	Construction of natural gas pipeline	Clearance under Section 106 of the National Historic Preservation Act	Survey report submitted to SHPO
Arizona State Land Office	Construction of natural gas pipeline across State lands	Right-of-Way grant Plant Salvage Payment	To be obtained prior to construction
Arizona Environment Department - Surface Water Bureau	Construction of pipeline across waters of the U.S., including wetlands	Section 401 certification	Application in preparation
Arizona Department of Agriculture	Construction of pipeline across land in Arizona	Native plant survey Notice of Intent to Clear	To be submitted prior to construction
Arizona Department of Transportation	Construction of pipeline across State highway	Highway crossing permit	To be obtained prior to construction
County			
Kern County, CA	County road crossing	County road crossing permit	To be obtained prior to construction
San Bernardino County, CA	County road crossing	County road crossing permit	To be obtained prior to construction
Riverside County, CA	County road crossing	County road crossing permit	To be obtained prior to construction
La Paz County, AZ	County road crossing	County road crossing permit	To be obtained prior to construction